LUCIP for the
Central Shops Burning/Rubble Pits, 631-1G and 631-3G

Appendix A of Corrective Measures Implementation/Remedial Action Implementation Plan for Central Shops Burning/Rubble Pits, 631-1G and 631-3G

WSRC-RP-2003-4018, Revision.1, August 2003

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APPENDIX B

LAND USE CONTROL IMPLEMENTATION PLAN (LUCIP)

FOR THE

CENTRAL SHOPS BURNING/RUBBLE PITS OPERABLE UNIT

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Land Use Control Implementation Plan

The Central Shops Burning/Rubble Pits Land Use Control Implementation Plan (LUCIP) will be appended to the SRS Land Use Control Assurance Plan (LUCAP).

The selected remedy leaves buried waste in place that pose a potential future risk and will require land use restrictions for an indefinite period of time. As negotiated with the United States Environmental Protection Agency (USEPA) and in accordance with USEPA Region IV policy (Johnston 1998), the Savannah River Site (SRS) has developed a LUCAP (WSRC 2002X) to ensure that land use restrictions are maintained and periodically verified. This LUCIP provides detailed and specific measures required for the land use controls selected as part of this remedy. The United States Department of Energy (USDOE) is responsible for implementing, maintaining, monitoring, reporting upon, and enforcing the land use controls described herein. Upon final approval, the LUCIP will be appended to the LUCAP and is considered incorporated by reference into the Post-Construction Report/Final Remediation Report (PCR/FRR), establishing land use controls implementation and maintenance requirements enforceable under the Comprehensive Environmental Response, Compensation, and Recovery Act (CERCLA). The approved LUCIP will establish implementation, monitoring, maintenance, reporting and enforcement requirements for the unit. The LUCIP will remain in effect until modified as needed to be protective of human health and the environment. LUCIP modification will only occur through another CERCLA document.

1.0 REMEDY SELECTION

1.1 Unit Name

The Central Shops Burning/Rubble Pits Operable Unit (OU) located in N Area in the central portion of the Savannah River Site (SRS), is approximately 10.5 km (6.5 mi) from the nearest site boundary. It is in the northern part of N Area (also known as Central Shops), approximately 0.9 km (0.6 mi) south of the intersection of SRS Roads 5 and C. Figure 1 shows (see Figure 1 in the main text) the location of the Central Shops within SRS and Figures 2 and 3 (see Figures 2 and 3 in the main text) depict the layout of the CSBRP OU and the Active Burning Area (631-2G).

There are two other burning/rubble pits (Pit 631-5G and Pit 631-6G) near Central Shops that are addressed under separate FFA actions. Pit 631-6G is included in the ROD that was completed in 1997. Pit 631-5G was initially a part of the Pits 631-1G and 631-3G OU; however, when a trichloroethylene plume was identified in the groundwater beneath Pit 631-5G, the pit was included in a new OU called the "Heavy Equipment Wash Basin and Central Shops Burning/Rubble (Pit 631-5G) Operable Unit."

Initially, the CSBRP OU was composed of two inactive burning/rubble pits, Pit 631-1G and 631-3G, located along the northern and western sides of the Active Burning Area (631-2G). However, trenching performed during characterization activities identified that Pit 631-3G was composed of two adjacent pits subsequently named 631-3G and 631-3GA. In this CMI/RAIP report, Pits 631-3G and 631-3GA are jointly addressed as Pits 631-3G/3GA.

Prior to 1951, the CSBRP OU area was farmland, an area of moderate relief. The pits are located in cleared areas adjacent to wooded lands. Drainage ditches and the flow paths of stormwater runoff have changed over time. During the disposal activities, each pit had at least one drainage ditch to receive water directly from that pit. The current surface water

drainage system and surface water flow pattern associated with CSBRP OU are presented in Figure 2 (included in the main text).

Pit 631-1G and Pits 631-3G/3GA primarily received asbestos and empty paint cans along with ash, paper, and glass at various times from the 1950s to the mid-1980s. Pits 631-1G and 631-3G/3GA are located along the northern and western sides of the Active Burning Area as shown in Figure 2 (included in the main text).

Pit 631-1G

Waste disposal activities at Pit 631-1G are estimated to have begun in late 1951. Historically, the pit had dimensions of approximately 61 by 9.1 by 1.8 m (200 by 30 by 6 ft). Records suggest that the pit was not excavated. Evidently, the debris was dumped into a ditch next to an access road in the Central Shops area.

During the Phase II investigation, trenching and ground penetrating radar (GPR) activities conducted at Pit 631-1G indicated a pit approximately 79.2 m (260 ft) long and 9.1 m (30 ft) wide. This pit contained debris from 0.6 to 2.7 m (2 to 9 ft) below land surface (bls), with an average waste thickness of 1.2 m (4 ft). The waste consisted of burned trash, including wood, glass, and stainless steel shavings. Overlying the debris was clay fill that varied in thickness from 0.6 to 1.2 m (2 to 4 ft). The clay fill, which was added in the 1980s, was overlain by approximately 0.3 m (1 ft) of topsoil (WSRC 1998) (for references see Section 6.0 in the main text).

At Pit 631-1G, combustible wastes reportedly were also deposited in the pit and periodically burned. The combustible wastes may have included oils, rags, paper, cardboard, plastics, degreasers, wood, rubber, and drummed organic solvents. Occasionally, the pit may have received only burned material and debris.

In 1973, the periodic burning of waste ceased, and a layer of soil was placed over the ashes. The pit then received only inert rubble consisting of paper, cans, lumber, and

empty galvanized steel barrels (see Figure 4 in the main text). The pit remained open until about 1985.

The actual volume of waste disposed of in the pit was not recorded. However, estimates from the Phase II characterization indicate approximately 884 m^3 (31,200 ft^3) of waste was disposed of in the pit.

Pits 631-3G/3GA

Historically, Pit 631-3G had dimensions of 122 by 15.2 by 2.1 m (400 by 50 by 7 ft). The pit began receiving waste some time after 1975.

In 1998, boreholes drilled through Pit 631-3G determined the depth to be at least 8.2 m (27 ft) bls with the trash rising to within 2.4 m (8 ft) bls and overlain by clay fill (WSRC 1998) (for references see Section 6.0 in the main text). The pit was used to dispose of dry inert rubble. As is evident from Figure 5 (included in the main text) it may have received asbestos, empty paint cans, fluorescent light fixtures, paper, cans, lumber, barrels, metal pipes, metal shavings, and electrical switch gear. The Phase II investigation of trenching activities within Pit 631-3G identified abundant stainless steel metal shavings, sheet metal, burned wood, and one crushed 208-L (55-gal) drum. Burning operations are not known to have occurred at Pit 631-3G. In 1983, dumping ceased and the pit was covered with 2.1 to 3 m (7 to 10 ft) of soil, creating a mounded profile. Historically, the volume of waste in the pit was unknown. However, estimates from the Phase II characterization activities indicate that the volume of the waste in Pit 631-3G is approximately 10,224 m^3 (361,000 ft^3).

Subsequent activities performed during Phase II characterization revealed that Pit 631-3G is actually divided into two separate pits, designated as Pit 631-3G and a southern Pit 631-3GA. During the Phase II investigation, trenching conducted across Pit 631-3GA revealed unburned materials including metal, large concrete slabs, and transite. In addition, burned materials identified in the pit included sheet metal, stainless steel

shavings, wire, glass, and wood (see Figure 6 in the main text). Boreholes drilled through Pit 631-3GA indicated the depth to be at least 4.6 m (15 ft) bls, with the top of the trash varying from 1.1 to 2.4 m (3.5 to 8 ft) bls and overlain by clay fill (WSRC 1998) (for references see Section 6.0 in the main text). The estimated volume of trash in Pit 631-3GA is 1,487 m^3 (52,000 ft^3).

To characterize the CSBRP OU, the OU was divided into four subunits including Pit 631-1G; Pits 631-3G/3GA; Ponded Area (includes surface water impoundment area and adjacent wetland); and Intermittent Stream as shown in Figures 2 and 3 (included in the main text). Additionally, groundwater associated with CSBRP OU was considered as a separate subunit. Activities were performed for characterizing each of the five subunits. The total area characterized was approximately 8 acres. The results of the characterization and the subsequent risk assessments for each of the five subunits have been summarized in the *RCRA Facility Investigation/Remedial Investigation with Baseline Risk Assessment (RFI/RI/BRA) for the Central Shops Burning/Rubble Pits (631-1G and 631-3G) (U), Rev. 1.2* (WSRC 2001a) (for references see Section 6.0 in the main text).

1.2 Nature and Extent of Contamination in CSBRP OU

Based on the conclusions of the RFI/RI/BRA investigation there are no refined COCs present into any subunit of the CSBRP OU, including groundwater. Hence, no problems warranting action are associated with the CSBRP OU.

There are no PTSM at the CSBRP OU; however, it has been determined that perched/trapped water associated with existing drainage conditions requires mitigation to reduce the uncertainty of future contaminant migration. Therefore, an action is required to maintain restricted (industrial) land use at the CSBRP OU to ensure protection of human health and the environment. Hence, the institutional controls (in conjunction with improved stormwater management) has been identified as the selected remedy.

1.3 Remedial Action Overview

The selected remedy will include the following:

- Institutional controls in accordance with the Land Use Control Assurance Plan (LUCAP) for the SRS. Controls will include erecting warning signs to mitigate the impact of the ongoing operations at the Active Burning Area (631-2G), periodic field inspections, monitoring perched/trapped water levels at Pits 631-3G/3GA.

- Improved stormwater management including:

    - Implementing surface water runoff controls such as reconfiguration of the pit surface areas and the surrounding areas

    - Routing the surface water flow away from the pits to minimize infiltration into Pit 631-1G and Pits 631-3G/3GA

    - Covering the pit surface area with vegetative cover

- Developing a Land Use Control Implementation Plan (LUCIP)

- Monitoring the effectiveness of the above improvements during periodic site inspections included under institutional controls. Pit 631-1G does not require monitoring since the perched water is temporal and discharges out of the pit to the adjacent wetland at the lower end of the pit as shown in Figure 7 (included in the main text). Six pressure measuring transducers will be embedded in Pits 631-3G/3GA and pore pressure will be monitored periodically for changes in the water pressure that will indicate the presence or absence of trapped water. The monitoring will be performed until the trapped water is significantly reduced or eliminated.

Since there are no refined COCs associated with CSBRP OU and the remedial action does not involve any treatment or physical action and there is no exposure pathway to be broken, the conceptual site model (CSM) is not included.

Monitoring of the water condition in Pit 631-3G/3GA will be performed weekly on data recorders. Data will be retrieved from the data recorders at least once a year and evaluated by a hydrogeologist to determine if the pit surface area improvements are reducing the infiltration as designed. The monitoring will be discontinued only when the water level shows declining trend for three consecutive years.

Additionally, 5-year remedy reviews will be performed to ensure that the remedy continues to provide adequate protection to the human health and the environment.

The selected remedy is protective of both human health and the environment, is effective in meeting remedial action objectives (RAOs), and is a permanent solution. The selected remedy will comply with applicable or relevant and appropriate requirements (ARARs) and will not pose any short-term risks to remedial workers, the community, or the environment.

According to the Savannah River Site Future Use Project Report (USDOE 1996) (for references see Section 6.0 in the main text), residential use of SRS land should be prohibited.

Time to complete construction is estimated to be six months.

2.0 LAND-USE CONTROLS

Considering the residual risks mentioned above, the land-use control objectives are to:

- maintain the use of the OU for industrial activities only,

- prevent unauthorized access to the closed CSBRP OU as long as the waste remains a threat to human health and environment, and

- preserve the cover and prevent disturbance of the soil in the pits.

Current access controls and a deed notification needed to maintain the future land use controls are described in the following sections of this LUCIP. The area subject to land use control is identified in Sketch SK-C-53169 (for reference see Attachment A attached to the main text).

2.1 Access Controls

2.1.1 On-Site Workers

In accordance with WSRC 1D, *Site Infrastructure and Services Manual*, Procedure 3.02, "Site Real Property Configuration Control" use of all lands and waters on SRS shall be coordinated via the Site Use Program. All employees, contractors, and visitors to SRS require adherence to the Site Use Program. This program ensures that all work performed on the SRS that adds, modifies, or removes features portrayed on the SRS development maps is authorized. No use of land (i.e., excavation or any other land use) shall be undertaken without prior approval documented by a Site Use Permit. This authorization is obtained through the completion of a Site Clearance Request Form. Also, in accordance with WSRC 1D, Procedure 3.02, all work at SRS that adds to or modifies features or facilities portrayed on SRS development maps (i.e., plot plans of facilities/utilities at SRS) will be authorized by a Site Clearance Permit before any excavation activities are conducted. All site clearance requests will be reviewed to verify that either an approved Site Use Permit has been obtained or that an existing Site Use Permit has sanctioned the request.

SRS, specifically the Site Development, Planning, and Mapping Department, is responsible for updating, maintaining, and reviewing site maps, including Federal Facility

Agreement (FFA) (1993) operable unit (OU) identifications. If a site clearance request is made that may impact an FFA OU, the Site Clearance Request Form is sent to the FFA OU reviewer, who is in the Soil and Groundwater Closure Projects (SGCP), for either approval or disapproval. The roles and responsibilities of each individual are detailed in WSRC 1D, Procedure 3.02, Verification of USDOE approval for intended land use must be obtained before issuance of a Site Clearance Permit. The site use clearance processes are applicable to all activities and personnel on site (including subcontractors).

The processes are controlled within the SRS Quality Assurance (QA) Program. The SRS QA program is the governing QA program for all SRS activities, including those in SGCP. The activities that are performed in SGCP must comply with SRS QA Program procedures as well as with SGCP-specific procedures.

SRS identifies all buildings and facilities on maps used in the Site Use/Site Clearance Program. This waste unit is identified on these maps as a CERCLA facility.

Any work proposed in these areas will be strictly controlled and workers will be appropriately trained and briefed about health and safety requirements if work is deemed necessary for maintenance. No major change in land use nor excavation at the Central Shops Burning/Rubble Pits (CSBRP) (631-1G and 631-3G) OU shall be undertaken without USEPA and South Carolina Department of Health and Environmental Control (SCDHEC) approval.

To prevent unknowing entry and to ensure that unrestricted use of the waste unit does not occur while under ownership of the government, identification signs will be posted at the unit. The signs will be legible from a distance of at least 25 feet. The signs will read similar to as follows:

Central Shops Burning/Rubble Pits (631-1G and 631-3G/3GA) Operable Unit

"Danger – Unauthorized Personnel Keep Out. This unit contains buried waste. Do not dig or excavate. Do not enter without contacting the waste unit custodian."

Custodian: Manager, Post-Closure Maintenance

Phone: (803) 952-6882

2.1.2 Trespassers

While under the ownership of USDOE, access control of the entire SRS will continue to be maintained in accordance with the 1992 RCRA Part B Permit Renewal Application, Volume I, Section F.1. This section describes the 24-hour surveillance system (R.61-79.264.14(b)(1)), artificial or natural barriers (R.61-79.264.14(b)(2)(i)), control entry systems (R.61-79.264.14(b)(2)(ii)), and warning signs (R.61-79.264.14(c)) in place at the SRS boundary to comply with the security requirements for a RCRA-permitted facility.

2.2 LUCIP Deed Notification

In the long term, if the property is ever transferred to nonfederal ownership, the U.S. Government will take those actions necessary pursuant to Section 120(h) of CERCLA. Those actions will include a deed notification disclosing former waste management and disposal activities as well as remedial actions taken on the site. The contract for sale and the deed will contain the notification required by CERCLA Section 120(h).

The deed notification shall, in perpetuity, notify any potential purchaser that the property has been used for the management and disposal of waste. These requirements are also consistent with the intent of the RCRA deed notification requirements at final closure of a RCRA facility if contamination will remain at the unit.

The deed shall also include deed restrictions precluding residential use of the property. However, the need for these deed restrictions may be reevaluated at the time of transfer in the event that exposure assumptions differ and/or the residual contamination no longer poses an unacceptable risk under residential use. Any reevaluation of the need for the deed restrictions will be done through an amended ROD with USEPA and SCDHEC review and approval.

In addition, if the site is ever transferred to non-federal ownership, a survey plat of the area will be prepared by a certified professional land surveyor and recorded with the county recording agency. The CSBRP OU is located in Aiken County.

Per Section 3.6 of the LUCIP, the post construction revision of this LUCIP will identify two separate areas (one for Pit 631-1G and the other for Pit 631-3G/3GA) under land use restriction via two survey plats each certified separately by a professional land surveyor.

2.3 Field Inspections and Maintenance for Institutional Controls

After the remediation of the CSBRP, only maintenance activities will be required per this remedial action. No operations will be required.

USEPA and SCDHEC will be notified of the results of any events and or actions that indicate some potential compromise of institutional controls within 30 days of identification and will be documented in the FFA Annual Progress Report. All other routine maintenance activities will be documented and maintained in files subject to USEPA and SCDHEC review and audit. A copy of the completed inspection form is maintained in the Soil and Groundwater Closure Projects Division Administrative Record Files. The land-use controls will be implemented as long as the waste remains a threat to human health or the environment.

The following steps will be implemented to maintain the soil covers for as long as it is necessary to prevent unacceptable exposure to future industrial workers:

- Perform periodic (semi-annual) visual inspections for evidence of damage to the vegetative covers due to subsidence, erosion or intrusion by burrowing animals. The inspection will also address upkeep of the vegetative cover and access control barriers (e.g., the warning signs). The inspection checklist for CSBRP OU is provided as an attachment (Attachment B-1).

- Perform necessary repairs (when required as identified during inspection) to maintain the functional integrity of the covers and the warning signs.

- Enforce SRS institutional controls through access controls by restricting access to the closed waste unit. Institutional controls will be maintained as long as the waste remains a threat to human health or the environment.

- As required by the National Oil and Hazardous Substance Contingency Plan (NCP), a five-year review of the selected remedy will be performed as long as the waste buried in the pits remains a threat to human health or the environment.

The waste site inspectors are to be trained in Hazardous Waste Operations and Emergency Response (i.e., HAZWOPER), RCRA Well Inspections (SGCP-specific training), SGCP RCRA Waste Unit Inspections, Radiological Workers, etc., as applicable for the specific inspection. They will also be trained based on the individual requirements of the regulatory approved closure documents for each waste unit. In addition, the inspectors are to attend yearly refresher courses. Over the years, different personnel will conduct the inspections and grass cutting operations.

The unit-specific LUCIP, including the inspection checklist (Attachment B-1), will be revised as needed (e.g., after completion and construction activities and in response to the result of five-year reviews of the remedy) and appended to the SRS LUCAP.

ATTACHMENT B-1

SGCP FIELD INSPECTION CHECKLIST FOR THE CENTRAL SHOPS BURNING/RUBBLE PITS (631-1G and 631-3G) OPERABLE UNIT

☐ Scheduled ☐ Unscheduled

A = Satisfactory X = Unsatisfactory (Comments required)	A or X	Observation or corrective action taken.
1. Verify the roads are accessible.		
2. Verify that the waste unit signs are in acceptable condition, have the correct information, and are legible from a distance of 25 ft.		
3. Verify that the electronic water pressure measuring devices (transducers) are accessible and not damaged		
4. Verify that there are no excavation, digging, or construction activities on the soil cover.		
5. Check the integrity of vegetative covers and drainage ditches for presence of excessive erosion, sediment buildup, and any debris restricting water flow.		

CAUTION: The inspector shall notify the PCM and ECA **IMMEDIATELY** if there has been a breach or compromise of the institutional controls of this waste unit. Refer to post-closure inspection procedures.

PCM – Post Closure Manager, Manager responsible for port closure care of the unit.

ECA – Environmental Compliance Authority, A professional responsible for providing regulatory support and interface between the project team and the regulatory agencies.

ATTACHMENT B-1 (Continued)

SGCP FIELD INSPECTION CHECKLIST FOR THE CENTRAL SHOPS BURNING/RUBBLE PITS (631-1G and 631-3G) OPERABLE UNIT

☐ Scheduled ☐ Unscheduled

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A = Satisfactory X = Unsatisfactory (Comments required)	A or X	Observation or corrective action taken.
6. Verify that no woody vegetation is growing on the soil cover. Remove or identify as needed.		
7. Visually check the vegetative cover for grass density, with no bare spots more than 3-ft by 3-ft in area. The height of the vegetative cover should not impair the visual inspection of the soil cover. This will be determined by the inspector.		
8. Check the soil cover for signs of erosion or depressions (subsidence).		
9. Check for signs of burrowing animals.		
Other:		

Inspected By_____/_____Date_____

(Print Name) (Signature)

Reviewed By_____/_____Date_____

Post Closure Manager (Print Name) (Signature)